

**METHOD FOR DETECTING AND RESOLVING
A PARTITION CONDITION IN A CLUSTER**

ABSTRACT

5 A method and system to detect and resolve a partition condition in a cluster of computers in
a networked environment is described. The method includes: creating a scratch pad area
accessible by the cluster of computers; dividing the scratch pad into a plurality of slots, each
slot associated with a plurality of nodes within the cluster of computers; recording in the
plurality of slots, a generation number and a list of known nodes by each one of the plurality
10 of nodes, wherein an identifier is written in the list for each node that is known to a writing
node and wherein the generation number and the list of known nodes is recorded when a
change of membership occurs in the cluster of computers; comparing each slot of the
plurality of slots to ensure the generation number and the list of known nodes matches in
each slot of the plurality of slots; and resolving the partition condition by creating a list of
15 surviving nodes and re-allocating appropriate resources to each of the surviving nodes. The
creating the list of surviving nodes can include listing a first set of nodes determined by
comparing each slot of the plurality of slots. The comparing each slot can include finding
a list with a master node to create the list of surviving nodes. Alternatively, the comparing
can include finding a list with a lowest node rank to create the list of surviving nodes or, the
20 comparing can include finding a list with a largest node to create the list of surviving nodes
or, finding a list with a maximum number of nodes to create the list of surviving nodes. The
method can also include shutting down each node not on the list of surviving nodes by
requiring each node not on the list of surviving nodes to write a special message in a
respective slot for that node and then shut down immediately. A new list of surviving nodes
25 is then sent to each node on the list of surviving nodes along with a new generation number.
Each non-surviving node is required to re-register with the cluster of computers.